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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of:

Steve W. Heppler

U.S. Patent No.: 5,348,164

Issued: September 20, 1994

**For: METHOD AND APPARATUS FOR
TESTING INTEGRATED CIRCUITS**

Reissue Serial No.: Not available

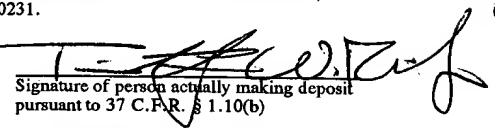
Filed: September 19, 1996

**Attorney Docket No.: 2972US
(92-0476)**

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REISSUE DECLARATION

Honorable Assistant Commissioner
for Patents
Washington, D.C. 20231

Sir:

The undersigned declarant, Steve W. Heppler, states and declares as follows:

My residence, post office address, and citizenship are as set forth at the end of this DECLARATION by my signature above my typed name.

I believe myself to be an original and first inventor of the subject matter which is claimed and for which a reissue patent is sought on the invention entitled METHOD AND APPARATUS FOR TESTING INTEGRATED CIRCUITS, an application for which was filed in the U.S. Patent and Trademark Office on September 19, 1996.

I have reviewed and understand the contents of the above-identified specification, including the claims, being claims 1 through 6 as originally issued in U.S. Patent No. 5,348,164 and new claims 7-32 as first presented herein. Upon information and belief, the original patent is partly inoperative by reason of my claiming less than I had a right to claim in originally-issued claims 1-6 of U.S. Patent No. 5,348,164.

Specifically, the claims of U.S. Patent No. 5,348,164 are believed to be unduly limited in that they recite limitations not necessary to patentability of the claims.

For example, originally-issued apparatus claim 1 recites:

An integrated circuit testing apparatus for testing an integrated circuit leaving an IC singulation station, comprising:

- a) a receiving means positioned in a pre test position for receiving the integrated circuit from the IC singulation station;
- b) a testing site, positioned to secure the integrated circuit after a displacement of said receiving means to a test position, the displacement positioning said integrated circuit in said testing site said test site having a test connection for making physical contact with said integrated circuit when it is secured in said testing site, a circuit test performed on said integrated circuit when it is secured in said testing site; and
- c) a holding station having a first post test position and a second post test position, said holding station receiving the integrated circuit in said first post test position from the receiving means following a return of the receiving means to said pre test position subsequent to the performing of the circuit test the integrated circuit; and
- d) a first track for receiving the integrated circuit from the holding station when the holding station is in said first post test position and when the circuit test determines that the integrated circuit has a first test condition: and
- e) a second track for receiving the integrated circuit from the holding station when the holding station is in said second post test position, said second test position attained when said receiving means returns to said test position, said second track receiving the integrated circuit when the circuit test determines that the integrated circuit has a second test condition.

New independent claim 7 eliminates the unduly limiting language from claim 1, and more broadly recites the claimed testing apparatus in terms of:

- a receiving apparatus positioned to receive untested integrated circuits from the integrated circuit singulation station;
- a testing apparatus positioned to receive the untested integrated circuits from the receiving apparatus and test the integrated circuits to identify defective integrated circuits and non-defective integrated circuits, said testing apparatus including a holding station, a first position, and a second position, said testing apparatus while in said first position allowing tested integrated circuits to proceed to said holding station and allowing untested integrated circuits to be received from said receiving apparatus; and
- a separating apparatus connected to the testing apparatus to separate defective integrated circuits from non-defective integrated circuits after testing thereof, said separating apparatus including a defective integrated circuit track for the defective integrated circuits and a non-defective integrated circuit track for the non-defective integrated circuits.

Comparing claims 1 and 7, the recited "receiving means" (element (a)) of claim 1 has been replaced with a recitation of "a receiving apparatus" in new claim 7. Likewise the recited "testing site" (element (b)) of claim 1) has been replaced with a recitation of "a testing apparatus" in claim 7. In addition, the limitations in elements (c), (d), and (e) of

claim 1 have been combined into the "testing apparatus" and "a separating apparatus" recited in new claim 7, to more broadly claim the invention recited in claim 1.

Dependent claim 8 is similar to originally filed claim 4 and further defines the claimed apparatus of claim 7 by specifying that the testing apparatus while in the second position will electrically test the integrated circuit.

Dependent claim 9 is similar to originally filed claim 5 and further defines the claimed apparatus of claim 8 by specifying that the holding station while in the first position holds defective integrated circuits from proceeding to the separating apparatus, and allows non-defective integrated circuits to proceed to the non-defective integrated circuit track of the separating apparatus, and that the holding station while in the second position releases defective integrated circuits to the defective integrated circuit track of the separating apparatus.

New independent claim 10 eliminates the unduly limiting language from claim 1, and more broadly recites the claimed testing apparatus in a similar manner as new claim 7, but further includes "a loading apparatus for supplying the integrated circuit leaving the integrated circuit singulation station to the integrated circuit testing apparatus."

Dependent claim 11 is similar to originally filed claim 4 and further defines the claimed apparatus of claim 10 by specifying that the testing apparatus while in the second position will electrically test the integrated circuit.

Dependent claim 12 is similar to originally filed claim 5 and further defines the claimed apparatus of claim 11 by specifying that the holding station while in the first position holds defective integrated circuits from proceeding to the separating apparatus, and allows non-defective integrated circuits to proceed to the non-defective integrated circuit track of the separating apparatus, and that the holding station while in the second position releases defective integrated circuits to the defective integrated circuit track of the separating apparatus.

New independent claim 25 eliminates the unduly limiting language from claim 1, and more broadly recites the claimed testing apparatus in terms of:
a testing apparatus movable between a first position and a second position receiving untested integrated circuits while in said first position and identifying first and second test conditions of an integrated circuit while in said second position; and
a separating apparatus coupled to and movable between the first position and the second position, receiving tested integrated circuits from said testing apparatus while in said first position and releasing tested integrated circuits having the first test condition while at said first position and releasing tested integrated circuits having the second test condition while at said second position.

Comparing claims 1 and 25, the recited "receiving means" (element (a)) and "testing site" (element (b)) of claim 1 have been replaced with "a testing apparatus" in new claim 25. Thus, the "testing apparatus" in new claim 25 recites that it receives the untested integrated circuits. In addition, the limitations in elements (c), (d), and (e) of claim 1 have been

combined and simplified into the "testing apparatus" and "a separating apparatus" recited new claim 25, to more broadly claim the invention recited in claim 1.

Dependent claim 26 further defines the claimed apparatus of claim 25 by specifying that the testing apparatus and the separating apparatus "include at least one integral member moveable between said first position and said second position."

New independent claim 29 eliminates the unduly limiting language from claim 1, and more broadly recites the claimed testing apparatus in a similar manner as claim 25, but further includes "a loading apparatus for supplying the integrated circuit leaving the integrated circuit singulation station to the integrated circuit testing apparatus."

Dependent claim 30 has the same language as dependent claim 26, but depends from independent claim 29.

The claimed method of the invention is similarly unduly limited. For example, originally-issued claim 3 claims a method for testing an integrated circuit in a testing apparatus after a departure of the integrated circuit from an integrated circuit singulation apparatus comprising the steps of:

- a) moving the testing apparatus to a loading position;
- b) loading the integrated circuit into the testing apparatus;
- c) moving the testing apparatus to a test position to position the integrated circuit for testing;
- d) performing electrical tests on the integrated circuit to provide a tested integrated circuit having identified first and second test conditions;
- e) moving the testing apparatus from the test position to position the tested integrated circuit for unloading;
- f) moving the tested integrated circuit to a first unloading position;
- g) unloading the tested integrated circuit from the first unloading position to a first track when it has said first test condition;
- h) moving the tested integrated circuit to a second unloading position when it has said second test condition; and
- i) unloading the tested integrated circuit from the second unloading position to a second track when it has said second test condition.

New independent claim 13 eliminates the unduly limiting language of claim 3, and more broadly recites the claimed method in terms of:
transferring the integrated circuit from the integrated circuit singulation apparatus;
receiving the integrated circuit at the testing apparatus while the testing apparatus is in the first position;
moving the testing apparatus to the second position;
testing the integrated circuit to identify defective and non-defective conditions of the integrated circuit;
moving the testing apparatus to the first position to allow the tested integrated circuit to proceed to the holding station while receiving a second singulated integrated circuit into the testing apparatus; and
separating the defective and non-defective integrated circuits.

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Comparing claims 3 and 13, new claim 13 adds the step of "transferring," removes step (a), and replaces step (b) with the step of "receiving." In addition, claim 13 has been written to broaden step (c) to read "moving the testing apparatus to the second position." Likewise, step (d) of claim 3 has been broadened to read "testing the integrated circuit to identify defective and non-defective conditions of the integrated circuit." Finally, steps (e) through (i) have been combined into the second step of "moving" and the step of "separating" to further broaden new claim 13 over claim 3.

Dependent claim 14 is similar to originally filed claim 11 and further defines the claimed method of claim 13 by including providing the testing apparatus with a non-defective and defective integrated circuit track, maintaining the holding station in the first position to prevent defective integrated circuits from proceeding to the non-defective track, and allowing non-defective integrated circuits to proceed to the non-defective integrated circuit track.

Dependent claim 15 is similar to originally filed claim 12 and further defines the claimed method of claim 14 by including moving the holding station to the second position and allowing the defective integrated circuit proceed to the defective integrated circuit track.

New independent claim 16 eliminates the unduly limiting language of claim 3, and more broadly recites:

- transferring the integrated circuit from the integrated circuit singulation apparatus;
- receiving the integrated circuit at the testing apparatus while the testing apparatus is in the first position;
- moving the testing apparatus to the second position;
- testing the integrated circuit thereby identifying defective and non-defective conditions thereof;
- moving the testing apparatus to the first position after testing of the integrated circuit;
- allowing the tested integrated circuit to proceed to the holding station;
- receiving a second singulated integrated circuit into the testing apparatus while in the first position; and
- separating the defective and non-defective integrated circuits.

Comparing claims 3 and 16, new claim 16 adds the step of "transferring," removes step (a), and replaces step (b) with the step of "receiving." In addition, claim 16 has been written to broaden step (c) to read "moving the testing apparatus to the second position." Likewise, step (d) of claim 3 has been broadened to read "testing the integrated circuit to identify defective and non-defective conditions of the integrated circuit." Finally, steps (e) through (i) have been combined into the second step of "moving," the step of "allowing," the step of "receiving," and the step of "separating" to further broaden new claim 16 over claim 3.

New independent claim 19 eliminates the unduly limiting language of claim 3, and more broadly recites the claimed method in a similar manner as claim 13, but further broadens the elements of the claimed method by eliminating reference to the step of "transferring."

Likewise, new independent claim 22 eliminates the unduly limiting language of claim 3, and more broadly recites the claimed method in a similar manner as claim 16, but further broadens the elements of the claimed method by eliminating reference to the step of "transferring."

Dependent claims 17, 20, and 23 have the same language as dependent claim 14, but depend from independent claims 16, 19, and 22 respectively.

Dependent claims 18, 21, and 24 have the same language as dependent claim 15, but depend from dependent claims 17, 20, and 23, respectively.

New independent claim 27 eliminates the unduly limiting language of claim 3, and more broadly recites:
receiving an untested, singulated integrated circuit into the testing apparatus while in the first position;
moving the untested, singulated integrated circuit to the second position;
testing the untested, singulated integrated circuit to determine first and second test conditions thereof;
moving the tested, singulated integrated circuit back to the first position;
allowing the tested, singulated integrated circuit to move to the holding station;
receiving another untested, singulated integrated circuit into the testing apparatus while in the first position; and
separating the tested, singulated integrated circuits having the first test condition from integrated circuits having the second test condition.

Accordingly, new claim 27 combines step (a) and step (b) of claim 3 into a single step of "receiving." In addition, claim 27 has been written to broaden step (c) to read "moving the untested, singulated integrated circuit to the second position." Likewise, step (d) of claim 3 has been broadened to read "testing the untested, singulated integrated circuit to determine first and second test conditions thereof." Step (e) has been broadened to read "moving the tested, singulated integrated circuit back to the first position." Finally, steps (f) through (i) have been combined into the steps of "allowing", "receiving", and "separating" to further broaden new claim 27 over claim 3.

Dependent claim 28 further defines the claimed method of claim 27 by specifying that separating includes releasing tested, singulated integrated circuits having the first test condition while the holding station is in the first position and releasing tested, singulated integrated circuits having the second test condition while the holding station is at the second position.

New independent claim 31 eliminates the unduly limiting language of claim 3, and more broadly recites the claimed method in a similar manner as claim 27, but includes the step of "transferring the integrated circuit from the integrated circuit singulation apparatus." Accordingly, new claim 31 adds the step of "transferring," and combines step (a) and step (b) of claim 3 into a single step of "receiving." In addition, claim 31 has been written to broaden step (c) to read "moving the untested, singulated integrated circuit to the second position." Likewise, step (d) of claim 3 has been broadened to read "testing the untested,

singulated integrated circuit to determine first and second test conditions thereof." Step (e) has been broadened to read "moving the tested, singulated integrated circuit back to the first position." Finally, steps (f) through (i) have been combined into the steps of "allowing", "receiving", and "separating" to further broaden new claim 31 over claim 3.

Dependent claim 32 has the same language as dependent claim 28, but depends from independent claim 31.

The submission of new independent claims 7, 10, 13, 16, 19, 22, 25, 27, 29, and 31 and of new dependent claims 8, 9, 11, 12, 14, 15, 17, 18, 20, 21, 23, 24, 26, 28, 30, and 32 is believed to correct the above-described errors in the claims.

Upon information and belief, the errors identified and described above with regard to the original claims occurred as a result of failure of the registered representatives who drafted and prosecuted the application from which U.S. Patent No. 5,348,164 issued to fully appreciate the scope of the invention or, if appreciated, to draft claims to appropriately define the true scope of the invention so as to avoid these errors.

Additionally, I failed, at the time the application from which U.S. Patent 5,348,164 issued was filed and during its prosecution, to appreciate the true scope of my invention, which led to the errors identified and described in this DECLARATION.

The errors identified and described above arose without any deceptive intention on my part.

The errors identified and described in this DECLARATION were discovered during a review of patents issued to Micron Technology, Inc., assignee of U.S. Patent No. 5,348,164, the review of this particular patent having been conducted during August and September of 1996 by counsel retained by Micron Technology, Inc. In September of 1996, said counsel contacted me, discussed the claims of my original patent with me, and confirmed the existence and nature of these errors with me with regard to what I believed to be, and still believe to be, my invention.

I acknowledge the duty to disclose to the Patent and Trademark Office all information known to be material to patentability of the subject matter claimed in this application, as "materiality" is defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby appoint the following Registered Practitioners to prosecute this application and to transact all business in the Patent and Trademark Office:

Joseph A. Walkowski, Reg. No. <u>28,765</u>	James R. Duzan, Reg. No. <u>28,393</u>
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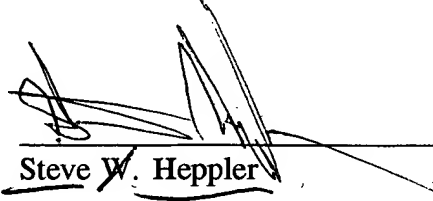
I hereby direct that all correspondence and telephone communications be directed to Joseph A. Walkowski at TRASK, BRITT & ROSSA, P.O. Box 2550, Salt Lake City, Utah 84110, telephone (801) 532-1922.

I hereby declare that all statements made of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like to made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Date: _____

10/22/96

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